

Java : Chapter One Review Questions

Name : Key

1. What is the Internet? (3 marks)

The Internet is the world-wide collection of computers connected together by a network of communications channels which consist of a variety of technologies — satellite, microwave, optical fibre + copper wire.

2. What is a site? (3 marks)

A site is where someone creates a file of information on a disk (or one that the person rents space on) + then permits access to the information by anyone else in the world. The information in the file can consist of text, graphics or a combination of the two.

3. What is the World-Wide Web (WWW)? (2 marks)

The World-Wide Web is the collection of sites across the world that offer information by allowing users to access or visit the sites.

4. What is a URL? (2 marks)

A URL (short for uniform resource locator) is an address that is unique in the whole world.

5. What is the job of a Web browser? (3 marks)

A Web browser allows you to type in a site address (URL). The browser then sends messages soliciting the information from the site. Provided the site is willing, it will send the information, which the browser displays on your screen.

6. What is a home page? (2 marks)

A home page is a screenful (or more) of information that welcomes the user to the site + offers a directory of what information there is on offer at the site + a choice of what to browse.

7. What is a hypertext link? (3 marks)

A hypertext link is a line of text (or an image) which, when clicked on, transports you to a different page. This new page could be on the same site as the one you just left, or it could be anywhere else on the Web.

8. Before Java, what were the two problems that occurred when getting a program from a Web site and executing it on the user's machine? (3 marks)

- 1) The danger of catching a computer virus by allowing a vicious program loose on your own machine.
- 2) There are a number of different types of computers in the world (Sun, PC, Macintosh, etc.) that work differently + will not normally run the same program.

9. How does Java solve these problems (in #8)? (2 marks)

Java solves these problems by facilitating the construction of both secure programs (programs that will not do damage) and programs that are portable (programs that run on any computer).

10. What is an applet? (3 marks)

An applet is a Web page with a Java program embedded in it (along with the normal text + graphics). When this page is opened through a browser, it will then execute (run) the Java program (to do this, however, the browser has to be Java-enabled).

11. What is a program? (2 marks)

A program is a sequence of instructions that are obeyed, starting at the first instruction + going on from one to the next until the sequence is complete.

12. What are the seven typical instructions that we are available for a computer to obey? (7 marks)

- 1) input a number
- 2) input some characters (letters + digits)
- 3) output some characters
- 4) do a calculation
- 5) output a number
- 6) output some graphical image to the screen
- 7) respond to a button on the screen being clicked by the mouse

13. Explain what a programming language is. (2 marks)

A programming language is a list of instructions written in a specialized language which will carry out the required task.

14. What is iteration? (2 marks)

Iteration is the repetition of some action.

15. What is selection? (2 marks)

Selection carries out a test + then does one of two things depending on the result of the test. (In Java, it uses the "if" and "switch" statements.)

16. What is a method? (2 marks)

A method is a small self-contained set of instructions which are reusable.

17. What does a program consist of? (2 marks)

A program consists of combinations of sequences, repetitions, selections + methods.

18. What are modules? (2 marks)

Modules are smaller, more manageable pieces of a larger, more complex program.

19. What are object-oriented programs (or OOPs)? (2 marks)

In OOPs, the programs are constructed from modules called objects.

20. Why is Java called an object-oriented language? (2 marks)

Java is called an object-oriented language because it provides the facility to construct programs using objects.

21. What is an object (list three points)? (6 marks)

- An object is a grouping of some data together with the instructions that act on the data.

- Objects are made up of data + their associated methods.

- An object is an instance of some class.

22. What are the two things that objects provide the programmer with? (4 marks)

1. modularity - a program consists of separate self-contained objects

2. simulation - a powerful idea for modelling real-world problems

23. What is a class? Why is it useful? (3 marks)

A class is the general type of an object which contains as many of the same type of objects as necessary.

It is useful because then you don't need to describe each + every object.

24. In OOP, how are classes created? (6 marks)

In OOP, the programmer describes the nature of the various classes that the program will use. Each class has a name, some data + a number of methods. Then, the programmer writes instructions to create particular instances of the classes for use in the program. Each object created in this way has its own unique name plus the data + the methods derived from the class. The particular instruction that creates an object is named new.

25. What do classes provide the programmer with? (2 marks)

Classes provide the programmer with generality, the facility to define something once + then make a lot of copies of it.

26. Explain the meaning of superclass and inheritance. (2 marks)

The superclass is the class immediately "above" or before another class. We say that the class inherits the characteristics of the class above it.

27. What does inheritance provide for the programmer? (3 marks)

Inheritance allows the programmer to reuse — the programmer can create new classes that make use of the facilities of existing classes, extending the facilities as necessary.

28. "Object-oriented programming (OOP) extends the power of lesser languages by providing objects, classes, and inheritance." (3 marks)

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